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Study of prescribing pattern of topical corticosteroids in dermatology out patients department in a Tertiary Care Hospital in Puducherry

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Abstract

Background: Topical corticosteroids have been used as the mainstay of treatment in many inflammatory and autoimmune dermatological conditions like psoriasis, lichen plannus, SLE etc. Keeping a constant watch on the rationality of these prescriptions is needed due to many known side effects of long term use of steroids and the high prevalence of such conditions with economical burden. The data pertaining to topical corticosteroids usage patterns in skin conditions are particularly lacking.

Objective: This study aims to evaluate and analyze the prescribing pattern of topical corticosteroids among dermatology outpatients in a tertiary care hospital.

Materials and Methods: This is a cross-sectional study conducted in the Dermatology outpatient Department of a tertiary care hospital, Puducherry, India for 3 months in patients prescribed with topical corticosteroids. The collected data were analyzed and results are expressed using descriptive statistics.

Result: A total of 200 prescriptions were analyzed, among which males and females were 43% and 57% respectively .The common indications for topical steroids were eczema (13.5%) followed by *psoriasis vulgaris* (12%). Clobetasol propionate was prescribed in 34.5% followed by mometasone furoate (24 %), betamethasone dipropionate (18%) and halobetasol (11%). Cream formulation was prescribed in 44.5%. Average drug per prescription was 3.5. 54% were prescribed drugs in generic names, but specification of strength and quantity were lacking. Instructions regarding usage were specified in 48% for area of application, 61.5% for route of administration, and 92% for frequency of administration.

Conclusion: Periodical analysis of prescriptions for a year with an emphasis on rational prescription with proper instructions to be followed for a good and quick therapeutic outcome which can reduce the economical and mental stress to the patients.

Keywords: Prescribing pattern, Topical corticosteroids, Dermatology.

1. Introduction

Dermatological conditions account for up to 2% of consultations in general practice worldwide. In India, the most common dermatological conditions found are dermatitis, urticaria, fungal infections, acne, alopecia, psoriasis, skin cancer and adverse drug reactions on the skin.[1] Drugs commonly used in dermatology are antibiotics, antifungals, antiallergics, keratolytics, emollients, scabicides, vitamins, and topical corticosteroids.[2] Topical corticosteroids have revolutionized the practice of dermatology since late 1950s, and continued to be the largest groups of drugs used because of their strong immunosuppressive, anti-inflammatory, anti pruritic and melanopenic like actions on the skin.[3]

They are effective in a wide spectrum of dermatological conditions characterized by hyperproliferation, inflammation and immunological

involvement. [4] Inappropriate use of topical corticosteroids can alter the normal presentation of superficial bacterial and fungal infections or even predispose them. Topical corticosteroids has its own side effects like skin atrophy, acneiform dermatitis, tachyphylaxis, telangiectasia, striae and so on, whereas systemic reactions may occur in the form of Cushing's disease, hypothalamic-pituitary-adrenal suppression and femoral head osteonecrosis.[5]

In order to counter these adverse effects and improve the efficacy, key factors to be considered while prescribing drugs are accurate diagnosis, selection of the correct drug, frequency of application, duration of treatment and consideration of adverse effects as they may have to be used for long term in many dermatological conditions. This makes it necessary to monitor, evaluate and therapeutically analyze the prescribing pattern of topical corticosteroids. Hence the present study had been attempted to analyze the prescribing pattern of topical Corticosteroids for various dermatological conditions.

2. Materials and methods

This is a cross-sectional observational study was conducted in the Dermatology outpatient Department of Sri Venkateshwaraa Medical College hospital and Research Centre, a multispecialty tertiary care hospital, Ariyur, Puducherry, India during the study period of 3 months from august 2016 – October 2016 with ethical clearance from the Institutional Ethics Committee after obtaining informed consent, 200 patients with various skin diseases prescribed with topical corticosteroids from the outpatient department of dermatology were included in the study. Demographic and prescription information like diagnosis, drug name, dosage data, strength, frequency of administration, whether generic name or trade name were used and prescription of any combination or concomitant use of other drugs were collected in a pre designed proforma.

2.1 Statistical analysis

The data were analyzed using descriptive statistics and observed results were expressed in ratios and percentages.

3. Results

A total of 200 prescriptions were collected from the patients prescribed with topical corticosteroids at dermatology out-patient department during the study period of 3 months. Majority of the patients were between 41-50 years (26.5%) followed by those between the age of 31-40 years (22.5%) and 19.5% of the subjects were above 51-60 years. Majority of the patients were females in about 57%. (Table 1)

Table 1: Distribution of patient's gender and age wise

General Information	N=200 (%)
Gender	
Male	86 (43)
Female	114 (57)
Age Groups (In years)	
00-10	3 (1.5)
11-20	9 (4.5)
21-30	24 (12)
31-40	45 (22.5)
41-50	53 (26.5)
51-60	39 19.5)
61-70	18 (9)
71-80	9 (4.5)

The commonly encountered skin conditions were eczema (13.5%), followed by psoriasis (12%) and lichen simplex chronicus (11.5%). (Table 2) Topical corticosteroids that were most commonly prescribed were clobetasol propionate (34.5%), mometasone furoate (24%), betamethasone dipropionate (18%) and halobetasol (11%). (Table 3)

Table 2: Disease pattern among study subjects receiving topical corticosteroids

Skin diseases	N=200 (%)
Eczema	27 (13.5)
Psoriasis vulgaris	24 (12)
Lichen simplex chronicus	23 (11.5)
Poly morphic light eruption	22 (11)
Insect bite hypersensitivity	17 (8.5)
Palmo plantar psoriasis	16 (8)
Lichen plannus	14 (7)
Allergic contact dermatitis	9 (4.5)
Alopecia areata	8 (4)
Guttate psoriasis	8 (4)
Atopic dermatitis	7 (3.5)
Irritant contact dermatitis	7 (3.5)
Pityriasis rosea	5 (2.5)
Air borne contact dermatitis	4 (2)
Prurigo simplex	4 (2)
Pityriasis lichenoides chronica	3 (1.5)
Seborrhoeic melanosis	3 (1.5)

Table 3: Topical corticosteroids prescribed for study participants

Topical corticosteroids	N=200 (%)
Clobetasol propionate	69 (34.5)
Mometasone furoate	48 (24)
Betamethasone dipropionate	36 (18)
Halobetasol	22 (11)
Hydrocortisone	9 (4.5)
Fluticasone propionate	8 (4)
Fluocinolone acetonide	5 (2.5)
Desonide	3 (1.5)

Monotherapy with topical corticosteroids were given in 53% of patients and in 47% combination therapy was given with fusidic acid, gentamicin, salicylic acid, neosporin, and clotrimazole according to the clinical diagnosis. The prescribed topical corticosteroids were in cream formulation in 44.5%, ointment in 33.5% and as lotion in 22%. Concomitant prescription of oral medications was noted in 19.5%, injections in 4 % of prescriptions and both were co-prescribed in 2.5%. Among the concomitantly prescribed drugs, antihistamines constituted 63.5% followed by antibiotics 54.5%. Emollients and skin protective agents were also commonly prescribed (51.5%) (Table 4). Miscellaneous drugs like antioxidants, antifungals, multivitamins and minerals were prescribed in 22% of the included patients.

Table 4: Types of drugs prescribed

Topical corticosteroid :	
a) Used alone	106 (53%)
b) In combination	94 (47%)
Topical corticosteroid in combination with	
a) Fusidic acid	39 (19.5%)
b) Gentamicin	14 (7%)
c) Salicylic acid	25 (12.5%)
d) Neosporin	6 (3)
e) Fusidic acid + Clotrimazole	4 (2)
f) Salicylic acid + Fusidic acid	2 (1)
g) Salicylic acid + Gentamycin	3 (1.5)
h) Fusidic acid + Neosporin + clotrimazole	1 (0.5)
Topical corticosteroid dosage forms	
a) Creams	89 (44.5)
b) Ointments	67 (33.5)
c) Lotions	44 (22)
Only Topical corticosteroid/topical corticosteroid + oral/injection	
a) Only Topical corticosteroid	106(53)
b) Topical corticosteroid + oral	39 (19.5)
c) Topical corticosteroid + injection	8 (4)
d) Topical steroids with both oral & injection	5 (2.5)
Concomitant drugs	
a) Antihistaminics	127 (63.5)
b) Antibiotics	109 (54.5)
c) Emollients and skin protective agents	103(51.5)
d) Other drugs	44 (22)

Average number of drug per prescription was 3.5 (Table 5). 54% of prescriptions were prescribed using generic names, but the other details like strength or quantity was not mentioned. Clear instructions to the patients like area on which the medication to be applied was written in 45%, route of administration in 61.5% and 92% of prescription carried the instruction regarding frequency and duration of administration. (Table 6)

Table 5: Number of drugs per prescription

Number of drugs per prescription	N=200 (%)
1	6 (3)
2	22 (11)
3	65 (32.5)
4	79 (39.5)
5	24 (12)
6	4 (2)

Table 6: Details of information included in prescriptions for topical corticosteroids

Specified parameters in prescription	N=200 (%)
Generic name	108 (54)
Strength	0 (0)
Quantity	0 (0)
Area of application	96 (48)
Route of administration	123 (61.5)
Frequency of administration	184 (92)

4. Discussion

Drug utilization studies are the organized quality enhancement processes which are considered to assess drug usage and prescribing patterns with current recommendations or guidelines for the management of a certain disease. Evaluations of drug use are done at a population level, according to age and sex. Prescriptions need to be audited occasionally to improve the therapeutic effectiveness, reduce the adverse effects, provide critical feedback to prescribers and scrutinize the execution of medical treatment standards.

Data assessment is the most essential step in the drug utilization studies. Summarizing the data into the major categories of results and verifying the point of deviation of the data from the previously described guidelines and usage criteria are very significant steps. Reasons for this deviation should be evaluated. For any drug utilization study to be successful, scientific elucidation of the results instead of a value decision needs to be prepared and results of the same should be circulated.

In our study, out of 200 prescriptions collected, 57% were of females and 43% were of males. Majority of the patients (26.5%) were in the age group of 41-50 years which might possibly be due to decreased attention towards skin care or due to any co-existing medical conditions which need to be probed. Following them, patients belonging to the age group between 31-40 years (22.5%) were affected. In both the age groups the most common dermatological conditions encountered were Eczema (13.5%) followed by psoriasis (12%), which is comparable to the study done by Divyashanthi *et al*.[6]

The prevalence of various dermatological diseases may also change based on the climate condition. Study of prescribing pattern and usage of topical steroids throughout the year of different climatic conditions will be much more helpful to identify the type of occurrence of various dermatological conditions and requirement details of corticosteroids especially in a tropical country like India.

The most common topical corticosteroid prescribed in our study was clobetasol propionate (34.5%), mometasone furoate (24%), betamethasone dipropionate (36%) and halobetasol (11%). These findings were comparable with the study done by Jena *et al* [7] and Bylappa *et al* [8] where clobetasol was the most common topical corticosteroid prescribed. In contrast to it, the study done by Javsen *et al* [9] showed betamethasone as the most commonly prescribed drug.

In our study, topical corticosteroid prescribed alone for 53% of patients. Prescriptions of topical corticosteroids along with other topical medications were observed in 47% of prescriptions. Most commonly prescribed combination was fusidic acid and salicylic acid probably as keratolytics in psoriasis and gentamicin and neosporin as curative or as prophylactic against secondary infection in eczema which was also observed in the study done by Mirshad *et al* [10] and Bylappa [8].

Topical antibiotics should only be prescribed when the infection is limited to a small area of the skin and if necessary a short course of a suitable oral antibiotic may be indicated in more severe cases. The development of resistance needs to be prevented by avoiding imprudent use of antimicrobials.

The topical corticosteroids were commonly in the form of cream 44.5%, ointment in 33.5% and as lotion in 22% of prescriptions. Oral dosage forms that were prescribed along with the topical preparation constituted 19.5%, injections 4% and combination of topical, oral and injection dosage forms were 2.5%.

In our study, the concomitantly prescribed drugs were antihistamines (63.5%), antibiotics (54.5%). Among them majority were of topical antibiotics (39%) and emollients and skin protective agents (51.5%). Proper guide lines and instructions to be given to the patients especially when given with other topical preparations as sometimes combinations are available and sometimes separate applications with time interval may be needed. When the dermatologists choose such combinations it will be ideal to take care about the possible interactions in to consideration also. Other miscellaneous drugs like antioxidants, antifungals, multivitamins and minerals were prescribed in 22% of prescriptions.

In our study, average number of drugs per prescription was 3.5. The number of drugs prescribed must be least since higher numbers leads to increased risk of drug interactions, adverse drug reactions, reduced compliance, and economic burden of prescription on the patient.

In 54% of the prescriptions drugs were prescribed by generic name which can be encouraged to almost 100% as per WHO recommendations which can reduce the cost burden of the drugs. This practice will definitely bring out the good therapeutic outcome especially in dermatological conditions by enhancing the compliance, as treatment may have to be continued fairly for long time. Strength of the drugs and quantity required were not mentioned in any of the prescription which may lead to improper understanding by the patients and chances of dispensing medicine with strength of their choice which may lead to either low dose resulting in failure of therapy or adverse or toxic reaction due to over strength.

Only in 48% of prescriptions details regarding specific area of application has been mentioned which might result in application over normal resulting in undue reactions or more systemic absorption as it varies in skin of different areas of skin. 61.5% of prescriptions carried information about route of administration. This is very important to avoid wrong usage.

Writing instruction in local language can help to prevent such confusions. Frequency of administration was mentioned in 92% of prescriptions which is appreciable. It will be better to enter all the instructions clearly in the prescription and explain orally also in detail for proper and good adherence to the prescription which will bring out anticipated therapeutic outcome and satisfaction to the patients.

The under use of steroids leads to sub therapeutic effect, whereas the over dosage/ longer duration of steroids use, with prescriptions not mentioning the particular quantity of the steroids, results in different adverse effects. Pharmacist should also be responsible in educating patients about correct application of topical corticosteroids, the frequency of application, and so on.

The patients should also understand the disease and its course, the complications caused by overuse and misuse of medications. The importance of taking good care on the biggest organ in our body namely skin should be stressed as skin acts as an insulator for our body against many invading infections apart from its other functions like temperature regulation etc.

5. Conclusion

Majority of skin diseases are chronic in nature and need lifelong treatment. Self medication, OTC medications, previous prescriptions usage should totally be avoided by the patients and this could be achieved through proper health education. By occasional monitoring, evaluating and therapeutically analyzing the prescribing pattern of topical corticosteroids, we can contribute to the rationale and ethical use of this life saving drug with maximum effectiveness and least side effects.

Hence, it is required for a healthcare professional to keep an organized account on prescription pattern and update it as and when needed especially in the case of topical corticosteroids. Continuing medical education for practicing physicians is also greatly needed. It is essential to execute and ensure success.

Such periodic drug utilization studies will help the health care providers to learn about the epidemiological behavior of such conditions so that they will be able to make the necessary medications available always without interruption. This will ensure the complete management and sudden stoppage of steroids due to short supply may lead to many problems like flare up of conditions etc.

Such periodic analysis of prescription regarding topical use of corticosteroids in dermatological conditions throughout the year is recommended to get an overall idea about the rational use of topical steroids so as to get the good therapeutic outcome which will also reduce the economical and psychological stress of the patients.

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